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OCT 16 1931
DETROIT

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 12. No. 1576 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879. — NEW YORK, TUESDAY, OCTOBER 13, 1931 — 5 Cents. $12 Per Year

N. Y. Used Car Dealers Find Arbitration Plan Halts Costly Law Suits

Scheme Adopted During Past Summer Protects Both Buyer and Seller; Gives Quick Satisfaction

NEW YORK, Oct. 12.—The settlement of disputes arising out of used automobiles by impartial experts selected by the parties instead of by long and involved litigation, is resulting from a plan put into effect during the past summer by one of the largest distributors of used cars in New York.

The feasibility of the plan, which has been watched with a great deal of interest by the trade, has been proved by the sucecssful disposition of two controversies between the distributor and the customer, which have been submitted to arbitration and have demonstrated the adaptability of arbitration to the settlement of disputes of this nature.

The plan is a simple one. The distributor has inserted in all of his agreements covering the sale of used cars a clause which provides for the arbitration of any controversy which may thereafter arise between him and the customer as a result of the transaction. The clause is as follows:

"It is also agreed that any controversy or claim, except one involving the question of title, arising out of or relating to this agreement or the breach thereof, shall be settled by arbitration under the New York arbitration law and in accordance

(Continued on Page 2)

ELABORATE PLANS FOR ENTERTAINING OF ANDRE CITROEN

Detroit, Oct. 12.—Plans made for the entertainment of Andre Citroen, the Henry Ford of France, during his brief stay in Detroit, starting October 22, promise a busy time for the visitor.

On Friday, October 23, he will be guest of honor at a luncheon at the Recess Club, at which Dwight Douglas, vice-president of the Detroit Bankers' Company, will be host. Later he will be entertained at a special meeting of the Detroit section of the S. A. E. Over the week end he will be the guest of Roy D.

(Continued on Page 2)

PRATT AND WHITNEY COMPLETE G. M. ORDER FOR GEAR GRINDERS

Hartford, Conn., Oct. 12.—Working night and day for three and one-half months, the Pratt & Whitney Company has completed twenty-six gear-grinding machines for General Motors. These grinders are to be used in finishing the transmission gears of a 1932 model automobile, according to Clayton R. Burt, president of the Hartford company.

The grinding machine, known as a ten-inch hydraulic gear grinder, is a recent development by Pratt & Whitney engineers. Only a few machines had been built and perfected, and regular production had not been started, when the General Motors order was received. The order stipulated that ten machines had to be delivered and in operation by September 10, and all twenty-six in operation by October 15.

The order was received on June 16. Before production could be started it was necessary to build approximately 300 different items of tools, fixtures and gauges for manufacturing purposes, which involved almost 600 patterns and castings. In addition the grinder itself contained more than 435 manufactured parts, and over 2,000 parts in all. The completed machine weighs approximately 7,500 pounds.

Precision Machines

The Pratt & Whitney machine, which is the first of its type to be put into production for grinding helical gears, finishes the teeth to within two ten-thousandths of an inch of aboslute accuracy, leaving

(Continued on Page 2)

Money Back Guarantee Features Used Car Drive

By CHRIS SINSABAUGH

DETROIT, Oct. 12.—What is believed to be something entirely new in the marketing of used cars has been sprung here by the Chrysler Detroit Company, distributor of Chrysler and Plymouth cars in the Detroit area. It is nothing more or less than a money-back guarantee. I have talked to W. D. Edenburn, general manager of both the Detroit Automobile Dealers Association and the Michigan Automotive Trade Association, and he declares it is something new to him and that it is an experiment that will be watched with interest by all dealers.

The new plan is being put into effect this week under the direction of Harry A. Grubb, the company's used car manager. He is going on the theory that at this time there are many who never have owned a used car but who would if they could be assured of what they are buying. So he is now giving a written money-back guarantee, allowing purchasers to take delivery and if it is not exactly as represented it can be returned within three days.

This announcement seems to be, at this writing, about the only bit of news floating around Detroit. Executives who attended the meeting of the National Automobile Chamber of Commerce in New York last week have returned to their desks in a comfortable frame of

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Polk Places September Car Sales Between 117,000 and 121,000 Units

Final Reports From Fourteen States Show Sales of 24,638 Units, Against 35,519 in Same Month of 1930

DETROIT, Oct. 12.—New passenger car sales during September, according to reports gathered by R. L. Polk & Co., compilers of official automobile registrations for the country, will probably total between 117,000 and 121,000 units, a decline of 50 per cent. or more from the five-year average of 241,341 units for the same month.

Final reports from fourteen states, available today, show total sales aggregating 24,638 units, as against 35,519 units in the same states in September, 1930, and 32,791 in August, 1931. Compared with the same period last year, September, 1931, sales thus far recorded show a decline of 30.63 per cent., although the drop from August, 1931, sales is only 24.86 per cent.

In September, 1930, the same fourteen states accounted for 20.27 per cent. of the month's total sales, indicating a total of 121,000 units during September, 1931. On the other hand, these same states registered 21.05 per cent. of the total sales in August, 1931, which would indicate total sales of only 117,000 units during September.

During the preceding five years, sales during September have totaled as follows:

1926	267,471
1927	187,678
1928	271,821
1929	304,452
1930	175,286
Five-year average	241,341

As in the case of new passenger car sales, the fact that final reports are available from only a small percentage of states makes it difficult to estimate the probable total of truck sales during September. Reports now in the hands of R. L. Polk & Co. from thirteen states show a total of 4,041 units, as compared with sales of 6,089 units during the same month last year and with a total of 4,346 units in August, 1931.

Compared with September, 1930, these states show a decline of 33.63 per cent. Their decline from Au-

(Continued on Page 6)

JOINS GEORGE GRAHAM

Detroit, Oct. 12.—The first of the executives of the George M. Graham organization, which is planning to put a new car on the market, reported for duty at headquarters in the Book Building here this morning. He is F. L. Wiethoff, who for fifteen years was identified with Willys-Overland sales, retiring as assistant sales manager of the Toledo organization to join the Graham forces. Before that connection he served in Pittsburgh and Denver branches.

It is said that it will be some time before any additional appointments will be announced.

NASH DECLARES 50-CENT DIVIDEND; EARNINGS GAIN

Kenosha, Wis., Oct. 12.—At a directors' meeting of the Nash Motors Company, held today at the office of the company, at Kenosha, a dividend of 50 cents per share was declared, payable on November 2 to stockholders of record at the close of business October 20.

The balance sheet and earnings statement for the third quarter, which includes the months of June, July and August, was presented showing cash and government securities in the treasury amounting to $36,889,029.30.

The earnings for the third quar-

(Continued on Page 6)

FIRST FORD OFF LINE IN NEWEST PLANT IN ENGLAND

Detroit, Oct. 12.—Another great unit was added to the world-wide Ford activties a few days ago, when the mammoth Dagenham plant of the Ford Motor Company, Ltd., of England, eighteen miles from London, on the Thames River, produced its first Ford car. The new plant when fully in operation will supply

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HERCULES OFFERS NEW LINE OF 4 CYL. HEAVY DUTY ENGINES

Canton, O., Oct. 12.—The Hercules Motors Corporation here is now manufacturing a line of small, modern four-cylinder engines and power units designated as the Hercules IX. Series. Models are available in the following bore, stroke and displacement:

Model	Size	Displacement
IXA	3 "x4"	113.1 cu. in.
IXB	3¼"x4"	132.7 cu. in.

The IX series engines and power units embody simplicity of design

(Continued on Page 6)

N. A. P. A. REPORTS 6.9% SALES INCREASE; ELECT NEW OFFICERS

Chicago, Oct. 12.—With all warehouse units represented, the annual meeting of the National Automotive Parts Association was held here recently at the Hotel Stevens. The N. A. P. A. is an organization of automotive parts warehouses in principal cities of the United States and Canada selling through approximately 1,000 jobbers.

The record of sales for the association for the past fiscal year revealed 6.9 per cent. increase over

(Continued on Page 6)

P. A. A. Convention Opens With 600 Delegates Present

Pittsburgh, Pa., Oct. 12.—The convention of the Pennsylvania Automotive Association which opened its 1931 annual two-day meeting at the William Penn Hotel here today brought together about 600 visiting dealers and representatives of the many branches of the motor industry throughout the state.

Large delegations came from Philadelphia, Reading, Allentown, Lencaster, York Wilkes-Barre, Williamsport, Johnstown, Altoona, Meadeville, Erie, Sharon, New Castle, Beaver Falls, Washington, Greensburg, Uniontown, as well as the many other smaller communities.

The Pennsylvania Automotive Association was organized in Harrisburg in November, 1919 and was a consolidation of the tri-state and central associations in one large group to represent all Pennsylvania dealers.

This association was formed by many of the pioneers of the automobile industry. Among the first organizers in the association from Pittsburgh were the late Frank D. Saupp, E. C. Bald, R. P. McAlister, Fred L. Dennis, H. W. Smith, T. F. Dunn and Jno J. Bell, former manager of the Automotive Association of Pittsburgh, also George W. McFarland, who was the first president; R. W. Shreiner of Harrisburg who is the present secretary and treasurer; Hugh B. Andrews, of Scranton; Jno Burton Arbuckle of Erie; W. H. Brearley of Ardmore; W. C. Cheeseman of Butler; C. W. Foster of Sharon; J. Miller Kalsbach, Reading; Charles J. McGough of Wilkes-Barre; D. Wilbur Ranck, Lancaster; E. T. Satchell, Allentown;, and E. R. Williams of Clearfield, Pa.

The first organization meeting was held at the state Capitol at Harrisburg, which at that time was turned over to the automobile deal-

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N. Y. Used Car Dealers Adopt Arbitration Plan

(Continued From Page 1)

with the rules then obtaining of the American Arbitration Association."

If a controversy then arises which the parties are unable to adjust amicably, neither of them may resort to litigation, but must submit the matter to arbitration, as under the New York arbitration law the courts will compel the parties to comply with their agreement to arbitrate and will stay litigation until the arbitration is held.

The use of this arbitration clause makes available to the parties the facilities of the American Arbitration Tribunal, including the services of its National Panel of Arbitrators, the members of which serve without compensation in disputes submitted to the tribunal. Approximately 1,000 members of this national panel are located in New York city, and include busines leaders from all branches of trade.

In the first arbitration arising under this plan, the customer purchased a used sedan, which was sold as being in good running order, after it had been gone over by the customer's mechanic. After driving the car the customer claimed that certain defects developed and demanded that a number of repairs be made by the seller under conditions which the latter considered unreasonable. As the parties could not agree, the seller referred the dispute to the American Abritration Association, in accordance with the arbitration clause in the agreement, and was advised of the procedure necessary to bring about the arbitration.

The agreement covering the sale of the car was made on August 11, 1931, and on August 21 the matter was referred to the association for arbitration. A hearing was arranged for September 1, and a few days thereafter the arbitrators rendered their award, in which they specified certain repairs to be made to the car at the dealer's expense, and the amount of the allowance to be made to the customer to cover the cost of these repairs. Other claims for repairs, made by the customer, were disallowed by the arbitrators as being unwarranted.

At the hearing it developed that the arbitrator appointed by the customer would be unable to appear, and rather than delay the proceedings by an adjournment or the selection of a successor to fill the vacancy, the parties agreed to proceed with the hearing before the remaining two arbitrators, who, in this case, were Thomas L. Lloyd of the Warren-Nash Motor Company and Frank W. Brock of the Better Business Bureau of New York city.

Under this plan disputes may not only be disposed of by arbitration promptly and impartially by experts who are qualified by experience and training to pass upon the merits of the dispute, but the award of the arbitrators is effective and binding upon the parties, and may be enforced under the law in the same manner as a judgment of the courts.

OLDS NAMES MURPHY AID TO SALES CHIEF

Lansing, Oct. 12.—The Olds Motor Works announces the appointment of F. Quinn Murphy as assistant to the general sales manager and in charge of dealer territories. Murphy has been zone manager for five years. That job now has been taken over by George H. Smith, formerly assistant Lansing zone manager, with James E. Stroud becoming assistant zone manager.

ELABORATE PLANS FOR ENTERTAINING OF ANDRE CITROEN

(Continued From Page 1)

Chapin, chairman of the board of the Hudson Motor Car Company, and Henry E. Bodman, chairman of the Guardian Trust Company.

On Monday, October 26, Citroen and his party will visit the Ford Motor Company's plants. On Tuesday General Motors will be the host with a function which will have Alfred P. Sloan, Jr., as host. The rest of the week will be utilized to inpect and study the General Motors plants in thre Detroit area.

PRATT AND WHITNEY COMPLETE G. M. ORDER FOR GEAR GRINDERS

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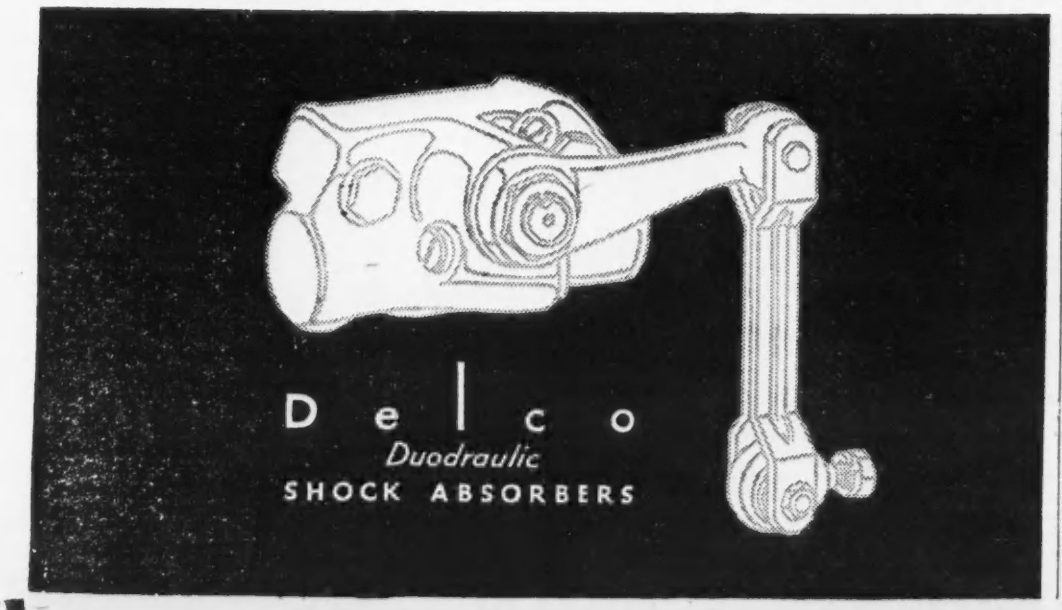
a possible error something less than one-tenth the diameter of a fine human hair, the makers claim. Commenting on the precision obtained with this new machine tool, H. D. Tanner, manager of the gear division of Pratt & Whitney, predicts that all cars will be using similar transmission gears within a year or two. Helical gears, he said, when properly ground, are the quietest known transmission gears which can be produced commercially.

STERLING OPENS NEW BRANCH IN BROOKLYN

New York, Oct. 12.—Confident of the future, H. C. Allison, vice-president and general manager of the Sterling Motor Truck Company of New York, announces the opening of a new branch at Brooklyn. A modern building has been obtained at 407-9 3d Ave.

It's the ride that sells the car, once the requirements of beauty, performance, and ease of control are satisfied. Every prospect tries the ride. That's the test that wins the sale. That's the final measure of satisfaction. No one wants a hard-riding car. And no one needs to own one. Cars in each price class offer Delco-Lovejoy riding comfort—achieved with Delco-Lovejoy hydraulic shock absorbers. They are the cars that people are buying. Riding comfort helps to sell many cars today.

DELCO PRODUCTS CORPORATION, DAYTON, OHIO



SPARKS from DETROIT

Pines Diversifies

* * *

Chalfant Honored

* * *

Lock Your Doors

* * *

Wilson Condict Gaining

Chris Sinsabaugh—Detroit Editor

NOWADAYS the up and coming manufacturer of accessories or parts used in the automobile industry is not putting all his eggs into one basket—he believes in diversification of product. This is the policy now of the Pines Winterfront Company of Chicago, whose automatic radiator shutter has been so universally accepted as a necessity.

As told to me by Howard H. Crawford, vice-president in charge of sales, whose Detroit office is here in the Fisher Building, the company is putting to good use its Chicago plant, which has 225,000 square feet of floor space. Not only is the winterfront produced there, but the company has recently added other devices that promise to keep both the manufacturing and sales department busy.

* * *

WORKING on this new policy, the Pines company has just put out two new devices and has a third coming through. It's Directo turning signal was announced a few weeks ago and now Mr. Crawford takes me behind the scenes and shows me another that is about to make its debut. It's really an old friend in a new dress, known as the Pines Universal Fuemer. This is a starting device originally brought out by the Aske brothers of Minneapolis and taken over by Pines. In its old form it was attached to the carburetor; now it goes on the manifold and is operated from the dash.

The Fuemer differs from the choke in that it electrically heats and vaporizes the gasoline. You reach for a Fuemer instead of a choke, Mr. Crawford says. Pressing a button on the dash is all you have to do. You count ten, then step on the starter and the job is done. Jack Frost and Old Man Winter are no longer feared.

* * *

THE Directo turning signal is attached to the steering post and fits any car. The switch operates a signal in the rear and another in the front, and there is a pilot light that tells you when either or both fails to flash the warning. Both your hands are free to handle the steering wheel, while Directo does its stuff in flashing the way you are turning. It is interesting to note that there is a front signal, too, for already one state, Illinois, has passed a law compelling a motorist to signal an oncoming car as to his intentions as well as telling those behind.

The third string to the Pines bow and which will make its appearance soon is Flexilite, an electric flash that differs from the conventional in that it is adjustable to any position or direction. Two metal straps carry the current to a head containing the light, which can be pulled out and adjusted to any angle.

* * *

NEW honors have been thrust upon E. P. Chalfant, executive head of the National Standard Parts Association. After serving on the executive board of the American Trade Association Executives several years, he has been chosen secretary-treasurer of the body, which contains in its membership more than 500 of the men who lead the various trade associations. Alfred Reeves, general manager of the National Automobile Chamber of Commerce, at one time president of the American Trade Association Executives, has been placed on the board. The retiring president was M. L. Heminway, former general manager of the Motor and Equipment Association.

* * *

OUR chief of detectives warns us to lock the right front doors of our cars while driving through the city streets, to foil bandits who hop in when you stop for a red light and tell you to stick 'em up. Recently five collectors for gasoline stations and grocery chains have been held up in this manner, hence the warning. The chief also suggests that another precaution at lonely intersections is to keep in gear with the clutch out, ready to start at an instant's notice in case a bandit bobs up.

* * *

PLEASING news for the advertising and publicity end of the industry is that Wilson Condict, manager of the automotive department of the St. Louis Globe-Democrat, who has been confined to a hospital bed for the past ten weeks, has so far recovered that he expects to be released from the sickbed inside the next two weeks.

Repeat Sales From Service Follow-up Good Merchandising

Dodge Bros. Service Manager Finds Money and Effort Well Spent That Brings Back Old Customers for New Units

"THE connection between sales and service in the automobile industry has long been recognized as a very important one," remarks D. T. Stanton, director of service for Dodge Brothers, who believes that satisfactory maintenance of owners' cars has become absolutely necessary to repeat sales and to the continuous growth of a dealership.

"Repeat sales to regular customers are considered one of the first essentials of successful merchandising in any line of business," he says. "Department stores spend millions of dollars annually to keep their customers through the good will that always comes with satisfied customers. Therefore, the money an automobile dealer spends to maintain close contact with his owners is well spent, money that cannot help but return a profit in increased service business and future new car sales."

Owners like to be remembered, Mr. Stanton has found out, and when a dealer, by means of a tickler system on his owners' cars, can call a man to whom he has sold a new car and suggest to him that certain work should be done, or that a certain inspection should be made at his car's present mileage, it is bound to make that owner feel that he is being treated right, with the result that, in many insances, he will be responsive to the dealer's suggestion and come in for service.

"The advantage is not all in favor of the dealer either," Mr. Stanton continued. "The rule works both ways. A continual run of service business means a profit for the dealer; regular and systematic maintenance on his automobile means continued, uninterrupted dependable transportation for the owner. Both profit, but the automobile dealer must take the initiative."

The difference between good service business and poor service business, believes Mr. Stanton, is most often a matter of consistent owner follow-up.

"It's human nature to trade where we think our patronage is appreciated and the lack of effective, consistent owner follow-up on the part of many automobile dealers is the direct cause of inadequate service profits in the past.

"Such an owner follow-up file need not be expensive," said Mr. Stanton in conclusion, "but it should include all the details necessary to permit the dealer and his service manager to have positive control of important facts concerning owners so that they will be able to follow them up at the proper time, keep them satisfied continuously and pave the way for repeated new car and service sales that are sure to follow in the majority of instances."

BUTLER MOTORS HOLDS BIG SALES MEETING

Chicago, Oct. 12.—Over one hundred dealers and salesmen were present at a special meeting called by Earl Butler, president of Butler Motors, Inc., Chicago Hudson-Essex distributors, held at the Congress Hotel this week.

A program for sales activity and special advertising was outlined for the coming months. O. H. Baehler, sales manager of Butler Motors, spoke on sales.

ANNOUNCE PRIZE WINNERS

Newark, N. J., Oct. 12.—Russell Vreeland and John Burke of the Bonnell-Mason Company's sales staff, were prize winners in the national sales contest conducted by the Oakland Motor Car Company. Vreeland's prize was a wrist watch, while Burke was awarded a gold pen and pencil set. Both men are well up in points in the contest, which was started September 1.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRINGS RESULTS

Open House Event Helps Lincoln, Neb., Dealer's Campaign

IN addition to an enlarged newspaper and direct mail advertising campaign, the Du Teau Chevrolet Company, 18th and O Streets, Lincoln, Neb., is boosting its volume of business in a fall sales drive by staging an open house event in which a novel exhibit in the windows of the new car show room demonstrates the smooth operation of the six-cylinder motor. To show that there will be no vibration under any speed, a glass of water is placed on an arm that is attached to the motor. The engine is kept running to show that the surface of the water will not be disturbed by ripples.

One of the new Chevrolet models is being used, and a design on the exterior of the window calls the attention of the passerby to the display. Arrows in the design point out the advantages to be gained by elimination of vibration, chief among them being the lowering of cost of upkeep in the moderate priced car. Another states that there are more than 8,000,000 Chevrolet owners. The Du Teau Chevrolet Company is one of the few automotive firms in Nebraska that has shown a greater volume of business during the first nine months of 1931 than for the same period in 1929.

"AUTOMOBILE SERMONS" USED IN ERIE, PA., TO BOOST CAR BUSINESS

Erie, Pa., Oct. 12.—Automobile dealers and distributors of accessories and equipment in this city have announced a novel method of acquainting the public with their products. Co-operating with a local church organization, it has been arranged to offer a series of so-called "automobile sermons" each Sunday evening for several weeks. At these sermons men prominent in automotive circles have been booked to speak on various subjects of interest to the motor car owner.

The series was put under way in fine fashion with an address by William M. Babcock of the Studebaker Sales and Service on "Free Wheeling." Another sermon will feature a talk on "Tested Tires" by M. R. Mead of Buffalo, representing Kitchen's Tire Service, Firestone distributor in northwestern Pennsylvania. The series will function for eight weeks.

Complete Overhaul Eliminated By Bus Firm Under New Plan

De Camp Line Works Out Life Expectancy Table Covering Most Important Replacement Parts

THE De Camp Bus Lines, Livingston, N. J., has worked out a life expectancy table, covering a total of fourteen of the more important units and parts of units of its fleet of buses. Finding that complete overhauls were expensive, on the ground that every unit should not need overhauling at the same time, this plan was put in effect and found to be successful.

Previously it was the practice to overhaul practically all units during the complete overhaul, to make sure that they would all be in equally good mechanical condition.

Finding that this duplication added considerably to maintenance costs, a system of unit repair and replacement, on a strictly mileage basis, was inaugurated. In starting this system of maintenance the manufacturers were asked to state the maximum mileage which they believed the units would go between adjustment periods. These recommendations were later either increased or decreased as experience indicated.

In the table showing the mileage of each unit it will be noted that all the different parts are scheduled for overhaul at a certain mileage. Each of these jobs is done at the specified mileage, and nothing else is adjusted unless its mileage period should correspond. For instance, the clutch is overhauled at 50,000 miles and the transmission at 75,000 miles. In this case the clutch is removed and overhauled at 50,000 miles, even though it may be in perfect operating condition. The transmission is removed at this time, but not overhauled, because its period is 75,000 miles.

The units are not numbered, but records of mileage covered and work done are kept on specially prepared forms, showing the bus number and the mileage of each unit.

Each month a clerk enters the latest mileage of the bus, and also makes out a list of the work which should be done that month, as indicated by the chart. This record gives the numbers of the buses which are scheduled for unit overhaul, as indicated by the table, and allows the foreman to plan his work accordingly.

Mortality rates may differ, and would be modified by such factors as the general experience of drivers, the regularity and frequency of lubrication and inspection, the type of service given and the general topography of the section in which the buses operate.

With De Camp the usual time for doing the overhaul is during the 3,500-mile inspection period. Two buses are scheduled to remain in the garage every day for inspection.

By inspecting only two buses a day, it is usually possible to interchange complete units or make any other repairs necessary the same day, thereby eliminating any interference with operating schedules.

Greasing is done at night at 1,500-mile periods. This includes complete lubrication.

Responsibility for road failures is posted monthly, and there is considerable effort made by both the maintenance and operating departments to keep the number of calls charged to each at a minimum.

The shop is equipped to make all repairs necessary to keep the buses running.

OVERHAUL CHART

Poppet Valve Engines

Differential	50,000 Miles
Drive shaft	75,000 "
Transmission	75,000 "
Clutch	50,000 "
Air compressor	75,000 "
Timing chain	30,000 "
Valves	50,000 "
Main bearings	100,000 "
Timer	50,000 "
Generator	75,000 "
Oil pan screen	10,000 "
Carburetor	75,000 "
Vacuum tank head	50,000 "
Rings and rods	Oil average

Sleeve Valve Engines

Differential	150,000 Miles
Drive shaft	100,000 "
Transmission	150,000 "
Clutch	75,000 "
Air compressor	75,000 "
Timing chain	50,000 "
Main bearings	30,000 "
Sleeves and sleeve rods	50,000 "
Timer	50,000 "
Generator	75,000 "
Oil pan screen	10,000 "
Rings and rods	10,000 "
Junk heads	10,000 "

SERVICE

Eighteen thousand service stations and dealers stand back of USL Batteries. This nation-wide network of constantly available service means that drivers of USL equipped cars are always within reach of competent USL battery men. It is one of the big reasons for the popularity of USL Batteries among motorists, car manufacturers and car dealers —a popularity shown by steadily increasing replacement sales of USL Batteries

USL BATTERY CORPORATION

Niagara Falls, New York

Other USL factories at Oakland, California; Toronto, Canada; Sydney, Australia; Manchester, England; Paris, France.

USL BATTERIES

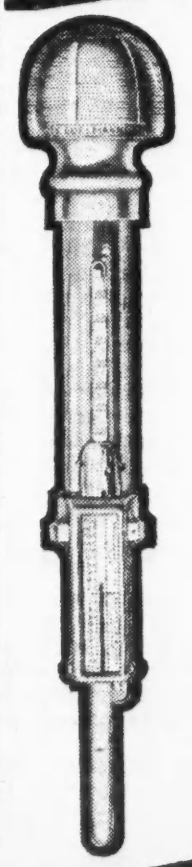
Long Life—Dependable Power

GOOD News!

The Popular

BREAK-NOT

Now Greatly Improved



You've used it before in your service station. You've sold it to car owners. Now you'll like the new "Thermo Break-Not" better than ever and you'll now sell a lot more of them to your customers for it combines all of the popular features of the well known Break-Not Hydrometer with the latest improvements in the scientific testing of storage batteries and is the greatest value ever produced in a storage battery tester for

Here Are the New Features

The new "Thermo Break-Not" is equipped with an individual, quick-acting thermometer and its own, direct-reading correction scale which corrects for the error that exists in the specific gravity of the battery acid caused by change in temperature. These two important features enable the operator to make tests with speed and scientific accuracy.

The thermometer registers the temperature of the battery acid, the correction scale tells, at a glance, exactly what to add to or subtract from the float reading to get the exact specific gravity of the acid at the temperature at which it is tested.

You need the "Thermo Break-Not" for your service station; you need it to sell to car owners. Order from your jobber today. If he can't supply you, write

$1.00 $1.25 West of the Rockies.

E. EDELMANN & CO.

2352 Logan Boulevard

Chicago,

U. S. A.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION,
350 Hudson St., New York, N. Y.
O. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.
Entered as second-class matter August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000

Member A. B. C.

Mail subscriptions to CIRCULATION DEPARTMENT 350 Hudson St.
Subscription Rates—One year, $12.00; two years, $20.00, for United States and Canada, also Mexico, Cuba and Panama.
To Other Countries—One Year $15.00; two years, $26.00. Single copies, 5 cents.

TUESDAY, OCTOBER 13, 1931

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Finances and Credits

IN a report recently received by Automotive Daily News from a Kansas dealer association, the secretary of that body very frankly states that finances and credits are the twin factors holding down automotive merchants in his territory at the present time. He acknowledges that stocks have been reduced to a low level, but believes that this is true because most dealers lack the cash or credit to bring their stocks up to satisfactory condition.

There is no question that a replacement market for motor vehicles is being created. Indeed, it has been in the making for many months. This year the motor vehicle industry will not produce as many cars and trucks as will actually be scrapped. Buying in 1931 has been largely by choice. Buying in 1932 is going to be dictated mainly by necessity. "The old boat" can be kept running just so long and then it imitates the wonderful one-hoss shay of tender memory. At the recent show meeting of the National Automobile Chamber of Commerce R. H. Grant and Alfred Swayne of General Motors emphasized this phase of the present situation and looked forward to 1932 with constructive optimism.

But, regardless of market conditions, of buying tendencies, or anything else, the automobile dealers of America have got to have enlightened help from the banks. Credit has got to be eased and dealer finances have got to be improved before we can hope for general revival in our retail sales organization.

President Hoover's plan for easing the situation among the country's banks should have the reflex action of helping dealer finances. With the need for abnormally liquid assets on the part of the banks gone, there will be more money to place in credits for constructive business purposes.

There are few other industries, improvement in which would do more to promote a general revival than is the case with the automotive business. Automobile sales and maintenance reach into every corner of the country and there is not a hamlet that would not feel the effect of improving conditions in automotive circles.

In the report from the Kansas association, to which we referred at the beginning of this editorial, the writer, while painting a rather subdued picture, gave one comforting assurance. He stated that most of the dealers in his territory during the present year had paid more attention to service than they ever had done before. Many of the merchants had been able to show a profit on the work in their shops; the first time such a condition had existed.

We have always maintained that ultimately the automobile dealers of the country would benefit from their experience in this depression. If decreasing sales have made the merchants aware of the fact that they must become dealers in automotive transportation, rather than in a single division of the business, in the end temporary adversity will have been a blessing.

Keep Away From the Cities

SECRETARY OF LABOR DOAK has just issued a timely warning to the effect that those who are at present without employment will do well to keep away from the cities during the coming winter. There is a tendency on the part of workmen without jobs and living in smaller communities to crowd into the cities, believing that the greater population gives better chances for getting work.

This is not true in the present state of affairs. The small town or rural man will be better off where he is known and has relatives than he will as a stranger seeking work in a city.

Business men everywhere will be assisting unemployment relief when they discourage any tendency on the part of rural labor to crowd into the cities.

Trade Association News

Baltimore Association Holds Save-a-Life Campaign Meet

ON Friday evening the Automobile Trade Association, in connection with the Automobile Club of Maryland, held a dealer meeting to promote the Save-a-Life campaign now being conducted in this state. Col. Austin Baughman, commissioner of motor vehicles for Maryland, cooperated in promoting the meeting.

Col. Baughman discussed the Save-a-Life campaign in detail and explained to the assembled dealers how they could help in the laudable work. John J. Hall, representative of the National Association of Insurance and Casualty Underwriters; H. M. Lucius, secretary and general manager of the Automobile Club of Maryland, and John E. Raine, general manager of the Automobile Trade Association of Maryland, were other speakers.

Empire State Automobile Group Plans Convention

WHEN the Empire State Automobile Merchants Association convention opens in Albany on October 14, members in attendance will find that they have made no mistake in taking two days off to join this gathering. Lewis G. Staple, manager of the organization and the very able committee in charge of arrangements have lined up a most interesting program, containing the names of speakers who are nationally known.

The Albany Automobile Dealers' Association is acting as host of the visiting dealers from all over the state, and Charles A. Touhey, president of that body, will welcome the delegates on Wednesday morning in a brief address. Headquarters will be at the Hotel Ten Eyck, where members will find the registration desk in the ballroom.

The following is the program as it is lined up now:

WEDNESDAY
(Ballroom, Ten Eyck Hotel)

9.30 to 10.30 A. M.—Registration. Come early. Shake hands with those you have known for years and meet and welcome new friends.

10.30 A. M.—Meeting called to order by Charles A. Touhey, president, Albany Automobile Dealers Association, who will welcome the dealers in behalf of the automobile dealers of Albany.

Response to the address of welcome by Dr. R. N. Forbes, president, Empire State Automobile Merchants Association, Inc.

10.50 A. M.—Address, "Selling, the Key to the New Distribution," O. C. Corbin, manager, Merchants Service Bureau, National Cash Register Company, Dayton, O.

11.30 A. M.—Annual report of president, Dr. R. N. Forbes.
Annual report of secretary, E. C. Bull.
Annual report of treasurer, W. W. Garabrant.
Annual report of legislative committee, H. A. Rayno, chairman.
Annual report of manager, Lewis G. Stapley.
Appointment of committees by president.

12.15 P. M.—Luncheon.

2.00 P. M.—Address, the Hon. Charles A. Harnett, New York state commissioner of motor vehicles.

2.45 P. M.—Address, "Adversity Means Opportunity," James Dalton, industrial editor, Motor.

3.30 P. M.—Address, "Legislation, the Dealer's Business," Donald Blanchard, editor, Automobile Trade Journal.

4.15 P. M.—Announcements.

4.20 P. M.—Adjournment until 7 p. m.

7.00 P. M.—Banquet.
Speakers: The Hon. Mark Graves, New York state budget director, "Public Finance"; Dr. Carl A. (Sunny) Sundberg, humorist, "Spizzeringtum."

THURSDAY
(Ballroom, Ten Eyck Hotel)

10.00 A. M.—Meeting called to order.
Address, "Co-ordination," H. Bertram Lewis, vice-president, Commercial Credit Company.

10.45 A. M.—Address, "Consider the Banana," H. W. Peters, vice-president of distribution, Packard Motor Car Company.

11.20 A. M.—Address, "Harnessing the Power of Gasoline," J. A. Costello, Ethyl Gasoline Corporation.

12.00 Noon—Report of nominating committee.

12.05 P. M.—Business meeting of the association and election of officers.

12.15 P. M.—Adjournment.

12.20 P. M.—Luncheon.

1.30 P. M.—Golf tournament, Schuyler Meadows Country Club.

COMING EVENTS

OCTOBER

12-13—**Pittsburgh, Pa.** Pennsylvania Automotive Trades Association, convention.
12-16—**Chicago, Ill.** National Safety Council.
14-16—**Pittsburgh, Pa.** Society of Industrial Engineers, convention.
14-15—**Albany, N. Y.** New York Automobile Dealers Association, convention
15-17—**Pittsburgh, Pa.** American Gear Manufacturers Association, convention
15-24—**London, England.** International Motor Exhibition, Olympia Hall.
19-22—**Chicago, Ill.** National Hardware Association, convention.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.
23—**New York City.** American Iron and Steel Institute, convention.
27-28—**Chicago, Ill.** American Railway Association, Motor Transport Division meeting.

NOVEMBER

5-14—**London, England.** International Commercial Motor Transport Exhibition, Olympia Hall.
10-12—**Chicago, Ill.** American Petroleum Institute, annual meeting, Hotel Stevens.
28-Dec. 9—**Brussels, Belgium.** Automobile Salon.
29-Dec. 5—**New York, N. Y.** Automobile Salon, Hotel Commodore.
30-Dec. 4—**New York City.** American Society of Mechanical Engineers, annual meeting.

DECEMBER

7-12—**Atlantic City, N. J.** Motor and Equipment Association and National Standard Parts Association, Joint Trade Show.
9-11—**Atlantic City, N. J.** American Institute of Chemical Engineers, meeting.

JANUARY

9-16—**New York City.** National Automobile Chamber of Commerce, National Automobile Show.
9-17—**Los Angeles.** Annual Automobile Show of the Los Angeles Motor Car Dealers Association.
10-15—**Chicago.** National Wheel and Rim Association, annual convention, Edgewater Beach Hotel.
11-14—**Detroit, Mich.** American Road Builders Association, twenty-ninth convention and show.
16-23—**Newark, N. J.** Newark Automobile Dealers' Association's annual show
16-23—**Buffalo, N. Y.** Annual automobile show of Buffalo Automotive Trade Association, Inc., 174th Regiment Armory.
17-23—**Cincinnati.** Automobile show of Cincinnati Automobile Dealers' Association.
17-23—**Milwaukee.** Annual Automobile Show, Milwaukee Automotive Trades, Inc.
22-30—**New York.** National Motor Boat Show, Grand Central Palace.
23-30—**Minneapolis.** Annual Automobile Show of Minneapolis Automobile Trade Association.

In the construction of the Kelsey-Hayes enclosed bolt circle steel spoke wheel enormous strength is obtained and permanent alignment and long wheel life is assured to the car owner.

Hadley Describes Function Of Plymouth Floating Power

By NEWTON FIELD HADLEY
Chief Engineer Plymouth Motor Corporation, presented before the Cleveland Section, Society of Automotive Engineers, last night

DURING the past thirty years the most noteworthy phase of the evolution of the automobile engine has been the insistent demand for more and more cylinders. We have advanced through this period from the chugging one-lung contraption of 1901 to the luxurious sixteen-cylinder product of the present day.

Some of the increases in the number of cylinders during this period have been justifiable, carefully considered and effective. Some of the increases have been mere hysterical efforts to stimulate the flagging interest of the buying public by advertising more cylinders per dollar than have ever been available before.

During this thirty-year period the six and eight cylinder engines have obtained their present positions at the expense of the four. The reason for this reversal of position is due almost entirely to the relative smoothness between these several types.

Manufacturers, striving for large volume production, are today faced by the fact that seven out of ten automobiles sold are in the price bracket below $650.

The soundest reason for increasing the number of cylinders has been the reduction of vibration. The greatest deterrent has been cost.

In order to continue manufacturing a car in the low-priced bracket, the Chrysler Corporation was faced with the necessity of a decision in the case of the following alternative: either to continue the four, including those features which their engineers have pioneered, developed and commercialized, such as hydraulic brakes, full pressure lubrication, aluminum alloy pistons and, above all, the uniform selection of material and precision of workmanship so proudly proclaimed as standardized quality; or, on the other hand, resort to a six, minus those fundamentals of design we considered so important, and built in a competitive manner to a competitive price.

Obviously, if the four was selected, its one great disadvantage had to be overcome. This disadvantage was vibration. It was overcome in a manner surpassing our wildest imaginings, and the four was selected.

The high speed requirements of the modern automobile have set very definite limits for the size of a single cylinder in respect to maximum piston diameter and length of stroke. These dimensions being determined, the number of cylinders required in a particular automobile is dependent upon the desired performance and the weight and size of the car.

I, then, four cylinders fulfill these requirements, the economic advantage is considerable.

Plainly, the addition of sufficient cylinder block to encompass two or more additional cylinders, and the necessary addition of pistons, connecting rods, crank throws, valve mechanisms and manifold will increase the cost of the engine (other things being equal) by 15 or 20 per cent. Furthermore, as the ratio of first cost increases through the complication of additional parts, so also will the maintenance cost increase in some like comparison, as the expense of repair or replacement must bear some ratio to the number of parts involved.

Floating power is the name applied to a particular type of engine mounting. The purpose of this engine mounting is to short circut vibrational effects from the chassis, body and passenger of a motor car.

The driver or passenger of a motor car is only concerned with those manifestations of vibration that he can feel, hear, see or prove destructive to some part of the mechanism.

The car, equipped with a four-cylinder engine mounted in the various ways available prior to the advent of floating power, was subject to the following major effects of engine vibration:

First (torque reaction)—The impulse effect resulting from the firing of each successive cylinder tending to rotate the engine in a direction opposite to that of the propeller shaft. This vibratory effect is principally noticeable under heavy lugging conditions at speeds below fifteen miles per hour and to a lesser degree throughout the driving range.

Second (inertia torque)—A function of the reciprocating masses, and noticeable while coasting with the engine as a brake.

Third (the so-called secondary harmonic forces)—A function of reciprocating mass and connecting rod length to stroke ratio. This force varies in magnitude with the square of the engine speed, but is particularly noticeable at certain critical speeds where synchronism occur with a natural frequency of certain major elements of the chassis, principally the frame, generally noticeable in most four-cylinder cars in the neighborhood of thirty, and again about fifty, miles per hour.

This force has been characterized as the "inherent unbalance of the four."

Fourth—The vibration resulting from improperly balanced rotating or reciprocating parts. This is not generally a fault in the finished product, as modern balancing methods are extremely effective in most plants and a very high degree of accuracy in balance is obtained.

Fifth—The vibration resulting from the distortion of engine parts. This difficulty is overcome by means of rigidity in moving parts subjected to strain.

The conventional four is affected by all of these vibratory forces.

The six is subjected to all but the secondary harmonic force.

The eight has all but the secondary harmonic and the inertia torque.

Floating power includes an engine mounting so hung as to permit relative freedom of oscillatory motion about an axis passing through the center of gravity of the power plant. Underneath the rear end of the transmission is a semi-circular adhesion rubber bearing, whose center coincides with the center line of the crankshaft extended. Conceive an imaginary axis passing through the center of this rubber bearing and projected forward through the exact center of gravity of the power plant. The forward end of this imaginary axis, then, locates the forward rubber bearing, directly below the water

(Continued on Page 7)

M. E. A.-N. S. P. A. Exhibits May Be Stored Free In New York City

To accommodate members who will exhibit their products at the joint M. E. A.-N. S. P. A. trade show in Atlantic City, N. J., December 7 to 12, and who also will exhibit at the National Automobile Show in New York, January 9 to 16, the board of directors has arranged free storage of such members' display material in New York.

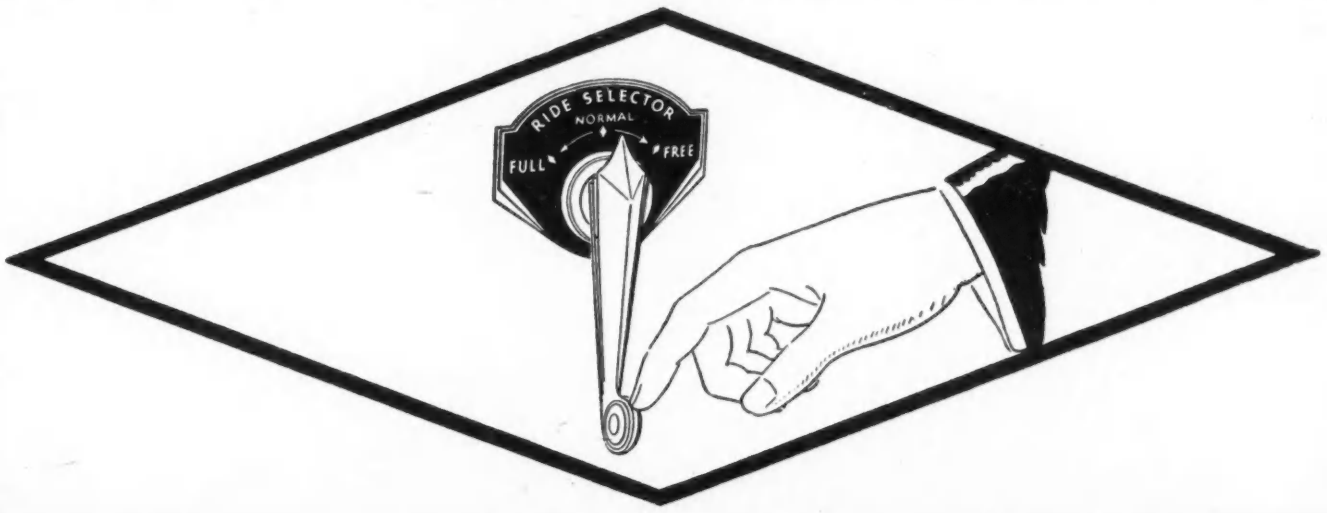
This will eliminate the necessity of returning exhibit materials to members' plants after the Atlantic City show and in many instances will represent a distinct saving in transportation costs. Members availing themselves of this opportunity should address their exhibit materials as follows when packing up after the Atlantic City show:

Name of Exhibitor,
Care of National Automobile Shows,
Grand Central Palace,
47th Street and Depew Place,
New York, N. Y.

Bills of lading should be handled just as they would if the exhibit were being shipped direct from the factory.

This arrangement offers to some exhibitors even further opportunity for saving because there is a discount of 25 per cent. available in the cost of having alternating current installed in the booth at New York if the Grand Central Palace Electrical Corporation is notified seven days in advance of the opening of the show to the effect that alternating current is required.

Inasmuch as the show palace in New York is wired for direct current there is an extra charge for running alternating current lines to exhibition booths. By notifying the company which installs these lines of the need for alternating current at the same time that the exhibit material is shipped from Atlantic City members will automatically qualify for the 25 per cent. discount allowed.



A touch of the finger gives "FULL-CAR COMFORT"

The new Monroe Ride Selector enables one passenger to travel as comfortably as though the car were carrying a capacity load. The Selector lever, conveniently located on the dash, instantly adjusts all four hydraulic shock eliminators to meet *any* driving conditions.

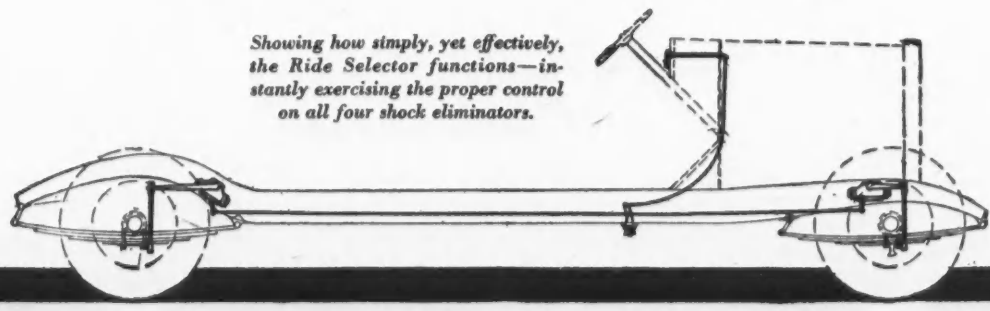
This revolutionary improvement introduces a new era in riding comfort. On smooth roads, the Ride Selector gives you the full resilience of the car's springs. Over bumpy detours, the eliminators may be set to absorb the hardest shocks.

Other important advantages are simplicity of operation, and a notable absence of side sway and body weaving.

We will gladly install the Monroe Ride Selector on your test cars. You will agree that it carries a strong sales appeal to a motoring public becoming more and more interested in riding comfort. The Monroe Auto Equipment Company, Monroe, Mich.

MONROE
RIDE SELECTOR

Showing how simply, yet effectively, the Ride Selector functions—instantly exercising the proper control on all four shock eliminators.



P. A. A. Convention Opens With 600 Delegates Present

(Continued from Page 1)

ers by the late Gov. Sproul to hold their charter convention. The association during the year following its organization secured a membership of about 400, and each year it has increased its membership until today the membership reaches 1,150. The maximum membership reached was in 1930, when there was a membership of 1,200.

This year's convention got under way at 8 o'clock this morning with the registration of members, visitors, guests at the headquarters in the William Penn Hotel.

At 9.45 a. m. President Charles J. McGough appointed the nominating committee and resolutions committee.

Benjamin G. Eynon, commissioner motor vehicles, Harrisburg, Pa., was the first speaker, with an address on "Safety—a Business Aid."

Glen Daily of the Pennsylvania Rubber and Supply Company, Cleveland, O., outlined "Ways and Means of Establishing Permanent Dealer-Customer Contact." This is a slogan that all automobile dealers are giving very great thought to establish pleasant relations between the customer and the dealer.

James Dalton, industrial editor of Motor, spoke on "Adversity Means Opportunity."

Luncheon was served at the William Penn Hotel Pirate Hall.

The afternoon session opened with an address by Clarence Eldridge on "Business Outlook for Retail Merchant in 1932." Mr. Eldridge is a member of Young & Rubicom, Inc., advertising agency of New York.

Borden & Busse of New York University, New York city, gave a talk on how to win a sales argument.

One of the outstanding speakers of the convention was R. H. Grant, vice-president and general sales manager of the General Motors Corporation, Detroit, Mich. His talk was on "Business Management as It Affects the Automobile Dealer."

This evening the annual banquet will be held in the Pirate Hall at the hotel, and the toastmaster will be the Hon. James Francis Burke of Pittsburgh.

The principal speaker at the banquet will be James E. Gheen of New York, humorist and philosopher, who will entertain the dealers with his wit and humor.

On Tuesday morning the president for the following year will be elected and introduced to the dealer body.

H. Bertram Lewis, vice-president Commercial Credit Companies, Baltimore, Md., will talk on credit as it affects the automobile dealer.

Victor Pope, automotive sales engineer of Akron, Ohio, will talk on "Building Upon the Automobile Franchise."

C. A. Vane, general manager, National Automobile Dealers Association, Chicago, Ill., will talk on bringing the automobile business to a higher plane.

The selection of the convention city for 1932 will then be made, and following the luncheon the annual golf tournament will be held at Wildwood Country Club. This brings together more than 100 golfers representing all parts of the state. The gold committee in charge of I. W. Danforth, J. R. Pierpont and W. W. Martin, have made great plans to take this event an outstanding one in golf circles.

The convention will close with a frolic at the Wildwood Country Club at 6 p. m., which is given to the visiting delegates by the Pittsburgh Auto Dealers Association. This is in charge of Chairman George Gray of the Nash-Pittsburgh Company.

N. A. P. A. REPORTS 6.9% SALES INCREASE; ELECT NEW OFFICERS

(Continued from Page 1)

the preceding year. This was especially encouraging in view of the fact that sales in 1930 had exceeded the 1929 volume by 15 per cent.

At the conclusion of the meeting the following directors were elected for the ensuing year: A. F. Baxter, R. W. Boozer, R. B. Bowman, C. C. Colyear, Douglas Hayes, Henry Lansdale, Matt Lawson, W. W. Martin and H. G. Root.

Officers elected and appointed were W. W. Martin, president; A. F. Baxter, senior vice-president; Henry Lansdale, vice-president and general manager.

HERCULES OFFERS NEW LINE OF 4 CYL. HEAVY DUTY ENGINES

(Continued From Page 1)

and construction. They are designed and built for heavy duty purposes and are arranged to accommodate all modern accessories.

In addition to their heavy-duty character, these small engines have also been developed for very efficient high speed operation for automotive and marine purposes, it is claimed. Very shortly these models will make their appearance in the marine market conversions being offered by two very prominent marine engine builders, the makers state.

NASH DECLARES 50-CENT DIVIDEND; EARNINGS GAIN

(Continued From Page 1)

ter of the company, after deducting all expenses of manufacturing, selling and administration, and providing for depreciation and both state and Federal taxes, amounted to $1,906,751.24. The earnings for the preceding quarter were $1,260,573.65.

N. E. Wahlberg, who has been the engineer of the company since its organization, and responsible for much if its success, was elected a vice-president in charge of engineering.

In viewing the general situation and the depressed conditions existing not only in the United States but all over the world, the management feels while the earnings are small, nevertheless they should be considered satisfactory.

The management drew attention to the fact that the line of automobiles announced last June has met with a splendid reception and given general satisfaction. It is, and without doubt is regarded by purchasers and the general public, as the best line of automobiles ever offered by the Nash Motors Company.

Polk Places September Sales Near 121,000 Cars

(Continued From Page 1)

gust, 1931, however, is only 7.02 per cent.

Based on the fact that during the same period last year these thirteen states accounted for 17.95 per cent. of the country's total sales, total sales of approximately 22,500 units would be indicated. However, in August, 1931, these states registered 16.09 per cent. of that month's total sales and on this basis the estimate for September would be placed at slightly less than 25,000 units.

FIRST FORD OFF LINE IN NEWEST PLANT IN ENGLAND

(Continued From Page 1)

Ford products to a large part of Europe.

The largest automobile factory in the world outside of the United States, the Dagenham plant occupies an area of 110 acres, with an additional tract of 484 acres adjoining reserved for expansion, and it has a frontage of nearly one-half mile on the Thames River, permitting the receipt of raw materials and the shipment of finished cars and parts by water as well as by rail.

The assembly and manufacturing buildings are each 1,000 feet long and 300 feet wide, being separated by a covered railway court eighty feet wide.

DETROIT CHRYSLER OFFERS MONEY BACK USED CAR GUARANTEE

(Continued from Page 1)

mind. Talking with each other at 366 Madison Ave. they found that the world really hasn't come to an end; that cars are being moved in a retail way at a pace that is reassuring, times considered, and that the disclosing of plans for the national shows makes them feel that the New York and Chicago affairs will be important milestones marking the way back to better times.

Production at the plants is slowing down, of course, but it always does in October unless new stuff is coming through.

CUMULATIVE NEW PASSENGER CAR REGISTRATION STATISTICS, SEPTEMBER, '31

Returns for today: Delaware, Florida, Maryland, Minnesota, Montana, North Dakota, South Carolina, South Dakota, Wisconsin and District of Columbia

States	Auburn	Austin	Buick	Cadillac	Chevrolet	Chrysler	Cord	De Soto	De Vaux	Dodge	Durant	Essex	Ford	Franklin	Graham	Hudson	Hupmobile	La Salle
Delaware	2		21	1	74	15		4		3	4	3	119		1	4	1	4
Florida	22		41	3	502	30	1	7	5	19	4	20	392	2	33	16	4	2
Illinois	120	5	269	39	1741	247	13	165	27	209	9	124	1893	9	159	64	60	29
Maryland	14		85	3	735	46		20		23	10	36	470	4	32	20	14	1
Minnesota	20		80	7	678	62	1	22	2	34	12	16	430		44	11	21	4
Montana	2		9		80	14		5	1	5	5	5	82	4	2		4	1
No. Dakota	1		18		122	10		3	5	6	4	5	160		3	3	1	
S. Carolina	5		14		341	15		10	2	12		15	358		2	3	1	
So. Dakota		3	17		159	17		17	3	25	2		140			2	4	1
Wisconsin	30	4	124	5	890	82	1	51	20	78	7	69	656		52	29	26	4
Dist. of C.	20		62	7	442	25		27		48	4	35	617	1	53	5	14	3
Totals	236	12	740	65	5764	563	16	331	65	462	61	328	5317	20	381	157	150	49
Dela., '30		3	75	9	96	18		4			7	11	195	1	1	8	3	4
Fla., '30	6	30	110	7	642	53	2	11		19	9	46	847	4	38	22	8	3
Illinois, '30	43	35	783	107	2167	310	12	158	*	206	31	176	3688	60	132	110	78	110
Md., '30	2	2	182	13	731	49	1	17		22	12	41	867	15	30	23	21	8
Minn., '30	5	8	216	6	1010	78		25		38	20	50	1350	1	42	36	24	16
Mont., '30	3	1	41	3	136	17	1	7		9	5	19	159	4	4	8	4	2
N. D., '30		4	64		354	16	1	7		11	14	23	438	1	10	7	2	1
S. C., '30	1	9	49	3	390	13		13		18	1	9	622		1	10	3	1
S. D., '30	1	3	50	1	418	24		3		39	17	19	487	3	9	5	10	
Wis., '30	14	10	362	15	1103	119	2	58		64	24	89	1504	9	46	72	22	13
D. of C., '30	5	6	109	22	283	28		10		16	10	23	680	3	24	13	19	11
Totals, '30	80	111	2041	186	7330	725	19	313	*	442	150	506	10837	101	337	314	194	169

States	Lincoln	Marmon	Nash	Oldsmobile	Oakland	Packard	Peerless	Pierce-Arrow	Plymouth	Pontiac	Reo	Studebaker	Stutz	Whippet	Willys	Willys-Knight	Miscellaneous	Totals
Delaware			6	1	9	7			28	17		8			9	3		344
Florida	3	1	24	5	15	9		1	202	57	4	14			13	4		1,455
Illinois	13	15	205	41	207	110	6	13	1138	283	27	181	4		126	29	17	7,597
Maryland	1	1	46	14	28	20	2	1	232	96	11	45			23	3	1	2,037
Minnesota			25	8	45	22		1	391	73	3	38	1	1	40	12	1	2,105
Montana			6	3	4	2			43	26	2	5		1	5	1		317
No. Dakota	1	2	3	1	7	1			53	12		8		2	14		2	448
S. Carolina			1	6	7	4			71	16	1	8			1			893
So. Dakota			4	1	23	2			62	18		12		1	9	3		525
Wisconsin	5	5	110	25	73	22		3	433	148	13	72		1	77	13	2	3,130
Dist. of C.	4	5	31	10	33	24		2	189	86	1	30			13	4	7	1,802
Totals	27	29	461	116	451	223	8	21	2842	832	62	421	5	6	330	72	30	20,653
Dela., '30	3	2	4	8	3	9			14	15		7		3	5	1	1	510
Fla., '30	6	13	24	21	15	15		2	63	56	6	11		13	6	2		2,113
Illinois, '30	30	60	228	85	204	201	8	42	331	356	46	401	12	40	114	60	22	10,446
Md., '30	4	7	53	13	30	19	2	7	81	99	21	52		11	17	7	5	2,464
Minn., '30	5	11	54	25	35	28	4	3	213	127	11	94		42	58	15		3,650
Mont., '30		2	10	6	3	1		1	18	12	2	12		3	7	4		504
N. D., '30		7	25	8	10	1			45	43	4	24		27	35	4		1,186
S. C., '30	2		10	9	5	5			29	17	5	11		1				1,237
S. D., '30	2	6	17	9	52	4			61	31	4	28		11	19	3		1,336
Wis., '30	4	22	184	68	93	26	2	12	217	225	21	184		47	109	15	2	4,757
D. of C., '30	5	12	16	24	34	32	16	6	49	57	6	47		7	10	7	6	1,596
Totals, '30	61	142	625	276	487	341	32	73	1121	1038	126	871	12	205	380	118	36	29,799

*Not in production at that time.

Production - - Engineering - - Factory

Floating Power

(Continued from Page 5)

pump and fan shaft. This forward bearing is of the inverted semi-circular rubber adhesion type. In addition to the two rubber bearings, there is a third member—a so-called torque spring of the cantilever leaf type, whose thick end is rigidly fastened to the bottom of the transmission, and whose thin end is carried in a rubber support underneath the right hand frame side rail.

The Functioning of Floating Power

To properly comprehend the operation and functioning of a floating power as we have built it, at least two fundamental principles must be understood:

First—The power plant operates as a pendulum under the effects of torque impulses. In such a pendulum the amplitude of movement is a variable and the frequency a constant.

Second—This same power plant, unrestrained under the effects of reciprocating forces, has a constant amplitude of movement and a variable frequency. The following explanation hinges upon these two fundamentals:

The fact that relatively free rotation is permitted about an axis through the center of gravity of the power plant eliminates the effects of torque reaction and inertia torque.

As each explosion takes place in a cylinder, the reaction to the driving force thus created tends to rock the power plant about this axis, until the resistance generated in the rubber mounting and in the torque spring balances this force.

There is practically no effect on the side rails of the frame as a result of this cycle, as the reactions which would normally be imposed upon the frame are dissipated through the acceleration of the mass of the power plant, and, as the power plant is oscillated about its center of gravity, there is no sidewise reaction on the frame.

In the heretofore conventional types of engine mountings, either of the rubber or solidly bolted type, the forces tending to cause power plant rotation, of course, exist in proportion to the size of a single cylinder. The tendency toward power plant rotation exists whether any appreciable degree of actual movement takes place or not. In the case of the majority of engine mountings, the power plant is constrained to rotate about an axis more or less coincident with the center line of the crankshaft, and several inches removed from its center of gravity. There is thus a sidewise vibration set up, whose violence is proportioned to the product of the maximum pressure of piston on cylinder wall by the distance of the center of gravity of the power plant to its axis of rotation.

The fact that the fore and aft bearings of the engine mounting are thick, live rubber reduces the effects of the secondary harmonic forces to an absolute minimum.

It has been determined mathematically, and proved experimentally, that a given mass of power plant, acted upon by a harmonic force, has a constant amplitude of movement inversely proportional to the mass. Assume a harmonic force of 1,000 pounds acting upon a mass whose amplitude constant is ¼ inch. Let this mass be mounted upon a rubber block with a deflection rate of 25 pounds to ¼ inch. The following is then evident. If this mass had been mounted solidly, the supports would have been subjected to a 1,000-pound force, but, as outlined above, the rubber block would absorb 975 pounds ,leaving only 25 pounds, variation for the supports.

The foregoing example illustrates in principle, but not in degree, the effect of floating power upon the secondary harmonic force.

The moment of inertia of the power plant about its axis, together with the flexibility of the torque spring and the torsional resistance of the rubber mountings, determines a constant frequency of oscillation for the power plant, the entire system becoming a torsional pendulum. As the torque forces increase, the amplitude of oscillation increases, but the frequency remains constant. By varying the deflection rate of the torque spring, the impulse rate at the frame end of the torque spring is tuned below the natural frequency of the side rail, thus avoiding periodic effects in frame and body.

Floating power permits an engine movement certainly unconventional, as measured by the standards of past practice. To set your minds at rest on this score, however, let me cite the case of the rear axle. If it were not for the controlled freedom of axle movement permitted by the springs between frame and axle and, in similar effect, the pneumatic tire between wheel and road, vehicles not operating upon rails would never have exceeded fifteen miles per hour. The mechanical destruction would have been terrific and the effects upon passengers killing.

You are quite accustomed to seeing an axle bounce up and down while traveling over a rough road. You do not worry about its ability to "stay put," and you appreciate how impossible motor car development would have been without this phenomenon. Floating power is an absolute parallel. It is just as important that a chassis be intelligently cushioned from the shocks imposed by the detonation of a cylinder charge as it is to cushion that same chassis from the shocks imposed by a rough road.

Once the desired character and degree of engine movement had been determined, certain problems, new to motor car design, presented themselves.

No postive contacts between the power plant and the chassis, body or driver could be permitted, as each such contact contributed its bit to the general effect of roughness, which we were endeavoring to eliminate.

Clutch and brake pedals had to to be bracketed from the frame. A linkage was provided for the clutch pedal, transmitting the desired rotary motion to the clutch shaft without subjecting the pedal to the reactions caused by engine movement.

The gear shift had to be treated to avoid objectionable movement in the shifter lever. The gear shift mechanism has been mounted on a frame crossmember. The actuating end of the lever loosely engages the dogs at the ends of the two shifter rails, this looseness or clearance permitting the required amount of power plant movement without a corresponding wobble in the shifter lever. The shifter lever bell seat was provided with a sufficient degree of friction to prevent movement from the inertia effect of the lever itself.

The points where the exhaust system is bracketed to the frame have been insulated and made flexible.

Gas and oil lines between engine and frame have been made from flexible tubing, developed to a satisfactory degree to withstand the destructive effects of hot oil or gasoline.

Even the starter pedal is remote control, although the starter control mechanism is of the manual type for positive starting. Nevertheless, it only contacts with the moving power plant at the actual instant of starting.

The detail of the accelerator mechanism has been so developed that no degree of engine movement will cause any pedal reaction.

In our earlier four cylinder cars performance of engine and car was limited by "roughness," as any attempt to increase the engine output resulted in increased torque effects (increased maximum pressure between piston and cylinder wall). The advent of floating power so minimized these effects that we were able to increase our engine output per cubic inch of displacement to a value favorably comparable with any other car in our line. This resulted in a top speed increase of from about sixty to nearly seventy stop-watch miles per hour.

Having considered the cause and effects of floating power from a design and performance angle, undoubtedly the question will arise in many of your minds as to the durability of a mounting principally dependent upon an organic substance (rubber) for its life.

Is there anything on earth called upon to stand the abuse of the millions of flexures and stresses on a pneumatic tire?

As for motor mountings — all Chrysler-built cars for years past have been suspended by tension type rubber mountings. Some sixteen of our leading manufacturers are using this tension type of rubber mounting, purchased from rubber companies licensed by us.

Floating power has been preceded by extensive rubber research in our own laboratories over a period of years. These laboratories have pioneered the use of "non-cold-flow" rubber for automotive use. Here the adhesion rubber principle used in these mountings was developed, with the result that motor mountings for the Plymouth car show a minimum adhesion between rubber and steel of 250 pounds per square inch, and in some cases up to 1,000 pounds per square inch.

Floating power employs rubber in compression only—obviously fully as dependable as if in tension.

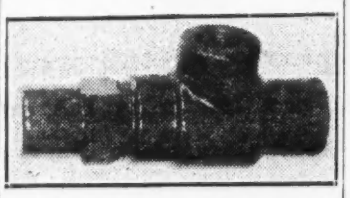
As for flexible gas and oil connections, similar connections have been employed in hydraulic brake layouts for the past seven years, subjected to greater flexures and infinitely higher pressures and fully as great a temperature range.

Floating power was an experiment—a gamble between, on the one hand, the preconceived habits and ideas of the buying public, based upon their past experience and limited imagination, and, on the other hand, the sales value of sound engineering fundamentals.

The success of this gamble is a matter of history and stands as an unqualified example of the possibilities of painstaking, logical engineering development, directed toward a definite objective.

We venture to predict that the principles of floating power will find their ultimate way into the engine mountings of the future, whether for pleasure car, boat or truck.

BROWN & SHARPE ADDS NEW PRESSURE-RELIEF VALVE



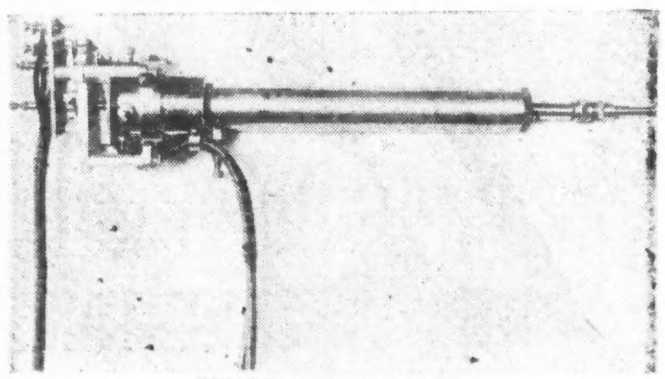
A pressure-relief valve designed especially for use in conjunction with hydraulically operated machinery has been recently added to the line of pumps and accessories made by the Brown & Sharpe Manufacturing Company of Providence, R. I. This valve is particularly adapted to operate in connection with hydraulic mechanisms and with the Nos. 53 and 55 Rotary Geared Pumps made by this manufacturer.

By removing the hexagon cap and turning the adjusting screw, the compression on the valve springs may readily be adjusted so that the valve may be set to operate at pressures from 0 to 200 pounds per square inch. Guides on the valve prevent fluttering and noisy operation.

Features in the design of the valve are the large valve chamber, which permits a ready escapement for the by-passed liquid, and the double spring arrangement, which gives wide range and flexibility. These provide for quiet and efficient operation of the valve, which when once installed and set for a predetermined pressure requires no further attention. The valve is made to take 1-inch piping.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Keller Improves Automatic Tool Room Machines



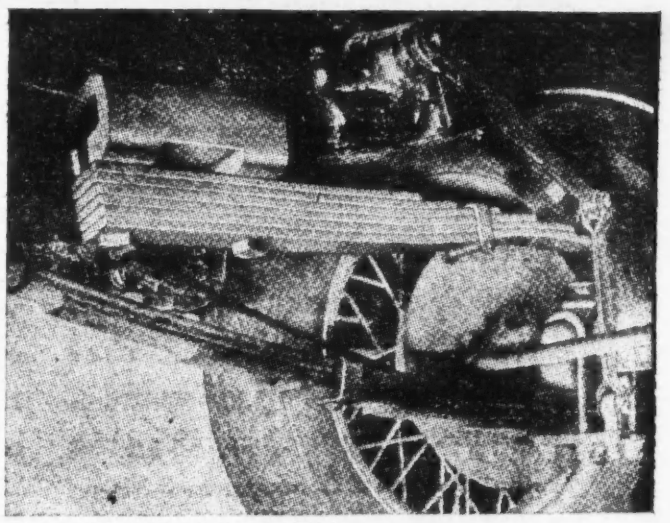
KELLER Combination Tracer

The Keller "right and left" attachment, although it has been in the past built for smaller model, is now available for work of all sizes, including large stamping dies, according to an announcement by the Keller Mechanical Engineering Corporation, Brooklyn. For example, with this attachment it is now possible to produce from a wooden pattern of a right side panel both the right and left panel punches, whereas in the past it was necessary to have a pattern of each panel. The advantages are obvious, especially in view of the difficulty of making right and left patterns that are exactly counterparts, the makers state.

For regular duplication work, model and workpiece are stationary on the machine fixture; to produce a reverse of the model the "right and left" fixture introduces a relative horizontal movement between model and workpiece. The workpiece still remains stationary, but the movement of the model in connection with the movement of the cutter has the same effect as if the model travels in the opposite direction of the workpiece, so producing a "left" from a "right," or vice versa.

Another recent development is a device known as a "Combination Tracer," which combines the features of the two electrical tracers used on Keller machines. This new tracer makes it possible to follow all three dimensions of a model at the same time. It is, for instance, possible to cut a bead in a drawing die punch, the tracer point traveling along the edge of the bead and at the same time following any variation in depth of the model. Besides a great saving in time over the method now employed on Keller machines, this new method gives a perfectly smooth finish and eliminates practically all hand finishing work on these operations, it is claimed.

Tuthill Auxiliary Spring For Chevrolet Trucks



The Tuthill Spring Company, 760 Polk St., Chicago, has just introduced to the trade a brand new helper or auxiliary spring for the half-ton light delivery Chevrolet truck.

It is estimated by the makers that these springs increase the pay load of a truck at least 50 per cent. and are priced so low as to make them an outstanding value.

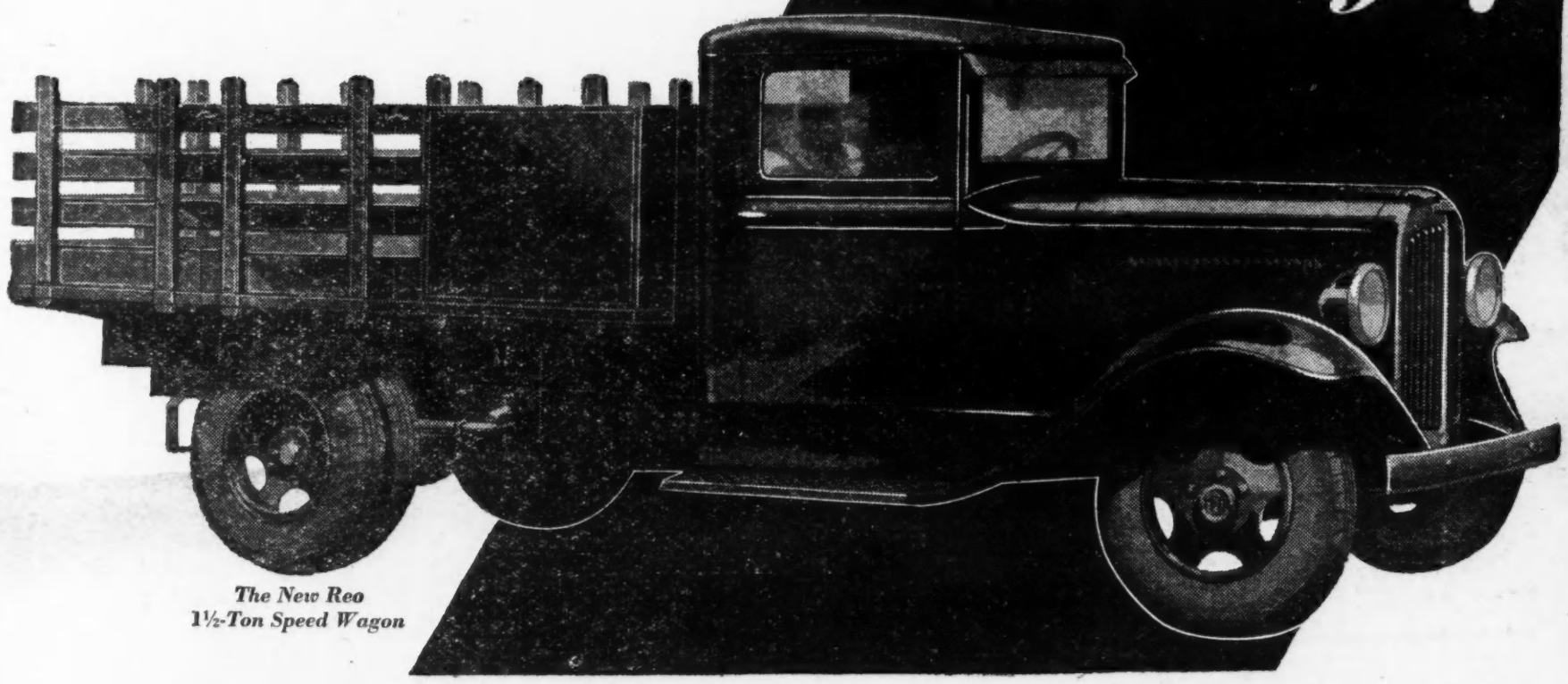
This new spring can be installed without interference with use of the shock absorber, which is standard equipment on the Chevrolet. No holes need be drilled. The springs contact with the rubber bumper block that is standard equipment on the regular Chevrolet rear axle. These helper springs are bolted to frame brackets that slip over the bottom web of the frame and are held securely in place by two set screws with lock nuts. They never shake loose or require any attention. It is claimed for this spring that there is absolutely no tendency to twist the frame of the truck, as is sometimes the case with springs bolted to the outer side of frame.

HERBRAND OFFERS NEW CHROME CHAIN PLIER

The Herbrand Company of Fremont, O., is just placing on the market a new chain plier, which is drop forged from chrome alloy steel. It is known as the Herbrand "quick link" tire chain plier No. 161. It is stated that the sharp opening wedges of this tool release the broken links easily and the positive closing jaws compress the links without distortion.

The handle is eleven inches long and the thirty-degree angle nose in the narrow, rounded head is designed to make access to all links easy. The range of utility is from the smallest connecting links to those used on medium-sized truck tires.

502 Dealers Signed REO's SPECIAL FRANCHISE OFFER in 90 Days!



The New Reo
1½-Ton Speed Wagon

In a few short months more than 500 dealers have accepted Reo's special truck franchise offer (with regular dealer discounts). Hundreds more are awaiting the detailed facts. In other words, there *is* a demand for a special franchise of this type—and Reo's unique proposition meets it squarely. If *you* are pondering the question of a supplementary line—if *you*, too, are asking "How can I make more money this year and next?"—then mail the coupon *now*. It will bring you the facts regarding the market in your own territory.

REO MOTOR CAR COMPANY · LANSING · TORONTO

SPECTACULAR VALUES IN PASSENGER CARS

Reo passenger cars, too, afford Dealers an exceptional opportunity for year-round profits. The quality is extraordinary—and the prices spectacular.

Flying Clouds		Reo-Royales	
6-21	$ 995	8-31	$1985
8-21	$1195	8-35	$2445
8-25	$1565	8-52 (7-Pass. Sedan)	$3695

Standard Model Prices—f. o. b. Lansing

THE NEW 1½ TON SPEED WAGON $625

Four-Cylinder $625, Six-Cylinder $725
Chassis f. o. b. Lansing, Michigan—Dual Wheels $22 Extra

REO MOTOR CAR COMPANY, Lansing, Mich.

Please send me at once—either by letter or through your representative—details of the Reo Special Truck Franchise.

Line (s) now handled_____

My Firm Name_____

Address_____ (City) _____ (State)

ADN-1013 By_____